

Jatuporn Padungkarn 2012: Effect of El Nino and La Nina Phenomena on Rainfall Amount, Air Temperature and Stream Flow at Mae Taeng, Choen and Khlong Yan Watersheds. Master of Science (Watershed and Environmental Management), Major Field: Watershed and Environmental Management, Department of Conservation. Thesis Advisor: Mr.Piyapong Tongdeenok, Ph.D. 159 pages.

The objectives of this research were to study variation analysis, relationship and testing analysis of variance among rainfall, air temperature and stream flow under El Nino and La Nina phenomena at difference typical watershed as Mae taeng, Choen and Khlong Yan. The methodologies were use difference hydro-meteorological characteristics as rainfall amount, air temperature and stream flow during 1951 to 2009. Source of rainfall amount and temperature data were belong to Thai meteorological department while stream flow measurement was belong to royal irrigation department and department of water resources. All data were analyzed by trend analysis, regression method and analysis of variance among 3 condition as annually, wet period and dry period, respectively under the significant level of 95 percent.

The results showed that annually average of rainfall amount at Mae Taeng, Choen and Khlong Yan watersheds were 1,199.60, 1,328.53 and 2,116.48 millimeters, respectively. The data were analyzed for testing the difference two mean significant that implied to effect of changing phenomena. The results indicated that El Nino phenomena was non significant among 3 watersheds while La Nina phenomena was significantly effect to wet period at Khlong Yan watershed. Air temperature, the annual average of air temperature at Mae Taeng, Choen and Khlong Yan watersheds were 25.86, 27.06 and 27.35 degree of celsius, respectively. The air temperature variation among 3 watersheds showed non significant during El Nino and La Nina phenomena. And stream flow measurement was explained as the annual average of stream flow data at Mae Taeng, Choen and Khlong Yan watersheds were 477.80, 437.22 and 959.60 million cubic meters, respectively. Differently testing stream flow data among 3 watershed showed non significant data during El Nino and La Nina phenomena.

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Thesis Advisor's signature